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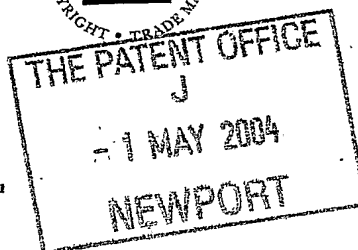
PCT/EP2004 / 013995

## Patents Form 1/77

Patents Act 1977  
(Rule 16)04MAY04 0823084-1 D10086  
P01/7700 0.00-0409860.4 ACCOUNT CHA

## Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)



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1. Your reference

ESL 00217/GB/P1

2. Patent application number

(The Patent Office will fill in this part)

0409860.4

- 1 MAY 2004

3. Full name, address and postcode of the or of each applicant (underline all surnames)ESL Healthcare Ltd  
Potts Marsh Industrial Estate  
Eastbourne Road  
Westham, East Sussex  
BN24 5NH, United Kingdom

Patents ADP number (if you know it)

7032485002

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

Wet Floor Former

5. Name of your agent (if you have one)

Martin Hyden

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Rouse Patents  
Windsor House  
Cornwall Road  
Harrogate  
HG1 2PW  
United Kingdom

Patents ADP number (if you know it)

8661159001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or  
b) there is an inventor who is not named as an applicant, or  
c) any named applicant is a corporate body.  
See note (d))

YES

Patents Form 1/77



## Patents Form 1/77

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Continuation sheets of this form

Description 5

Claim(s) 1

Abstract 1

Drawing(s) 3 *x 2*

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77) 1

Request for substantive examination (Patents Form 10/77)

Any other documents  
(please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

*M. Polizzi*

Date

Martin Hyden

30/04/04

12. Name and daytime telephone number of person to contact in the United Kingdom

Jane Polizzi/Anna Whitehead 01423 850800

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## WET FLOOR FORMER

[0001] This invention relates to shower installations. In particular it relates to shower installations using wet floor formers.

[0002] In conventional showers, the base of the installation is formed from a tray that is typically mounted slightly above floor level and has a rim formed around its periphery to retain water while it drains from the base through a drain hole. Access to such an installation requires a step up from floor level to enter the shower. Even though this step might be relatively small, it can still represent a major hindrance to people with physical disabilities, the old-aged or wheelchair bound, for whom the step up is either very difficult or, in some cases, impossible. One approach to address this problem has been the wet floor installation. In such an installation, all or part of the floor of the room is covered with a waterproof covering and the floor under the covering slopes down to a drain. Such a floor is created by using a wet floor former: a structural former, typically made from glass reinforced plastic, metal or other such materials which defines the shape of the wet floor, in particular the fall towards the drain hole, and over which the waterproof covering is laid. Normally water drains under the effect of gravity. However, there are certain cases in which it is difficult or impossible to locate the shower base sufficiently above a drain for gravity to cause water to flow properly into the drain.

[0003] One solution to the problem of difficult drainage by gravity is to fit a pump to the waste outlet from the shower to pump waste water into the drain at a rate sufficient to prevent the shower base from filling with water and flooding the room. Examples of pumped waste systems for conventional showers can be found in GB 1,532,953; GB 2,224,777; GB 2,276,541; GB 2,288,116; GB 2,294,636; and GB 2,361,429.

[0004] GB 2,373,515 describes a floor drain for a shower which includes a wet floor former for supporting a water resistant floor covering material, the former comprising a base having a predetermined fall, and a trap towards which the fall is directed, the trap comprising a sump which



is provided on the base, a shower water inlet through which water from the floor covering material can enter the sump, a waste water outlet, a pump for causing at least a portion of the said water to flow from the sump through the waste water outlet, and a clamp which surrounds the shower water inlet and by which the floor covering material can be clamped to the base. The pump is located incorporated into the waste water outlet (discharge pipe).

[0005] All of these systems suffer from a number of problems. A typical electrically heated shower can deliver water at 6-8 litres/minute. In order that the shower should not fill up and flood the room in which it is located, the pump must remove water at a rate no less than this and so the pump is typically rated at around 10-12 litres/minute. Such pumps are large, making it difficult to locate the pump below the shower tray. They are also noisy. As the pump draws at a rate greater than the water flows from the shower, it will also draw a large amount of air through the drainage system. This can lead to air locks forming in the system, preventing effective drainage, and causes more noise.

[0006] It is an object of this invention to provide a wet floor former for creating a shower installation that can be supplied with a pump to assist drainage which does not suffer from some or all of these problems.

[0007] This invention attempts to address these problems by configuring the sump of a wet floor former as a pump chamber so that when a pump mechanism is installed, water drains directly into the pump chamber.

[0008] The invention comprises a wet floor former for supporting a water resistant floor covering material, the former comprising a base having a predetermined fall, and a trap towards which the fall is directed, the trap comprising a sump which is provided on the base, a shower water inlet through which water from the floor covering material can enter the sump, and a waste water outlet, the sump being configured as a pump chamber for receiving a pump mechanism for pumping water from the sump through the waste water outlet.



[0009] By configuring the sump as a pump chamber, it is possible to fit a pump after the former has been installed without the need to have access below the base. Also, because such a sump can operate without a pump mechanism, either for a gravity drain, or when attached to another pump system in the discharge, it is only necessary to have one type of former for any installation.

[0010] The sump is preferably formed integrally with the base, although it can also be formed separately and attached prior to installation.

[0011] The preferred form of pump is a centrifugal or impeller pump, the impeller being positioned in the pump chamber and driven by a motor. The motor can be mounted above the pump chamber. There can also be a filter cover mounted above the pump chamber to prevent blockage of the chamber. Where the motor is located above the pump chamber, it can be positioned so as to be entirely below the cover.

[0012] By positioning the pump chamber to receive water from the shower directly, the problems associated with the need to suck water from a sump are avoided. Thus the pump can be of lower power and problems of air locks are reduced.

[0013] It is also preferred that a clamp is provided which surrounds the shower water inlet and by which the floor covering material can be clamped to the base, typically attaching directly to the sump/pump chamber.

[0014] The invention will now be described by way of examples, with reference to the accompanying drawings, in which:

Figure 1 shows a shower installation with a wet floor former according to one embodiment of the invention;

Figure 2 shows a detailed view of the sump of Figure 1; and

Figure 3 shows an exploded view of a pump mechanism for use with the wet floor former of Figure 1.

[0015] Referring now to the drawings, a shower installation including a wet floor former according to one embodiment of the invention is shown



in Figures 1 and 2 and is formed in a corner of a room with the two adjoining walls 1, 2 being tiled and the shower head 3 being attached to the wall 1 in the normal manner. The base 4 is provided in the form of a wet floor former 5 with a waterproof covering 6 secured to its upper surface. A drain 7 is formed part way along one edge and close to the wall 2. The waterproof covering 6 is secured to the former 5 around the drain opening by means of a clamping ring 11 that is positioned on top of the covering and screwed into the base 5. The regions 8 of the base 4 around the drain 7 are sloped such that water naturally flows towards the drain 7. A sump 9 is formed integrally with the base 4 in the drain 7. A pump attaches to the sump in the manner described below.

[0016] A pump mechanism for use with the wet floor former described above is shown in Figure 3. A sump body 10 is formed integrally with the wet floor former 5 and defines an open-topped, shaped pump chamber 12 with an outlet 14. A top plate 17 is fixed over the pump chamber 12. The top plate 17 has a hole 19 formed in a central region thereof. A motor housing 18 is provided for fixing on top of the top plate 17 and above the base of the shower and encloses an electric motor 20 (together with an associated electrical controller 21) which drives an impeller 22 located in the pump chamber 12 by means of a drive shaft 24 passing from the motor 20 through the hole 19. A cover 26 sits over the housing 18. The cover 26 is provided with apertures 27 for allowing water to drain through into the pump through the hole 19 but to catch and filter out items such as hair which might otherwise block the pump or drain.

[0017] A non-return valve 28 is positioned in the outlet 14 to prevent water flowing back into the pump chamber 12 when the pump is not active. In the present case, the valve 28 is in the form of a flap which is formed integrally with a resilient gasket 30 positioned between the sump body 10 and top plate 17.

[0018] The motor 20 is a low voltage electrical motor and is connected to a power supply in the normal manner (not shown). Sensors (not shown) are also provided in the pump chamber 12 for detecting the presence of water. These sensors can be used to automatically activate the pump when sufficient water has flowed from the shower to cover the



impeller 22, and to stop the pump when the water falls below this level for any reason. The sensors can be of a number of different forms, for example a sensor probe extending down into the pump chamber 12 to a predetermined height above the base thereof, or spaced electrodes in the pump chamber.

[0019] The wet floor former 5 of the invention is installed by either providing a wet concrete layer into which the former is pushed; the concrete then being allowed to set; or by being fixed directly on top of timber floor joists. The waterproof covering 6 can then be secured in the normal manner. The outlet from the sump is connected to a waste water pipe in the normal manner. If the waste pipe is capable of draining under gravity, or alternatively already includes a pump, all that is required is to fit a cover 26 to stop hair or other material from entering the sump and blocking the outlet. If no pump is fitted, and it becomes evident that one is required, either on original installation or thereafter, it is a relatively easy job to fit the pump mechanism into the sump to improve drainage.

[0020] Further changes can be made while staying within the scope of the invention.



## Claims

- 1 A wet floor former for supporting a water resistant floor covering material, the former comprising a base having a predetermined fall, and a trap towards which the fall is directed, the trap comprising a sump which is provided on the base, a shower water inlet through which water from the floor covering material can enter the sump, and a waste water outlet, the sump being configured as a pump chamber for receiving a pump mechanism for pumping water from the sump through the waste water outlet.
- 2 A wet floor former as claimed in claim 1, wherein the sump is formed integrally with the base.
- 3 A wet floor former as claimed in claim 1 or 2, further comprising a clamp surrounding the shower water inlet and by which the floor covering material can be clamped to the base.
- 4 A wet floor former as claimed in claim 3, wherein the clamp attaches directly to the sump.
- 5 A shower base comprising a wet floor former as claimed in any of claims claim 1-4 and including a waterproof covering secured to the base.
- 6 A shower base as claimed in claim 5, further comprising a pump mechanism mounted in the sump.
- 7 A shower base as claimed in claim 6, wherein the pump is a centrifugal or impeller pump, the impeller being positioned in the pump chamber and driven by a motor.
- 8 A shower base as claimed in claim 6 or 7, further comprising a filter cover mounted above the pump chamber to prevent blockage of the chamber, the motor being located above the pump chamber and entirely below the cover.



# ABSTRACT

A wet floor former for supporting a water resistant floor covering material, the former comprising a base having a predetermined fall, and a trap towards which the fall is directed, the trap comprising a sump which is provided on the base, a shower water inlet through which water from the floor covering material can enter the sump, and a waste water outlet, the sump being configured as a pump chamber for receiving a pump mechanism for pumping water from the sump through the waste water outlet.







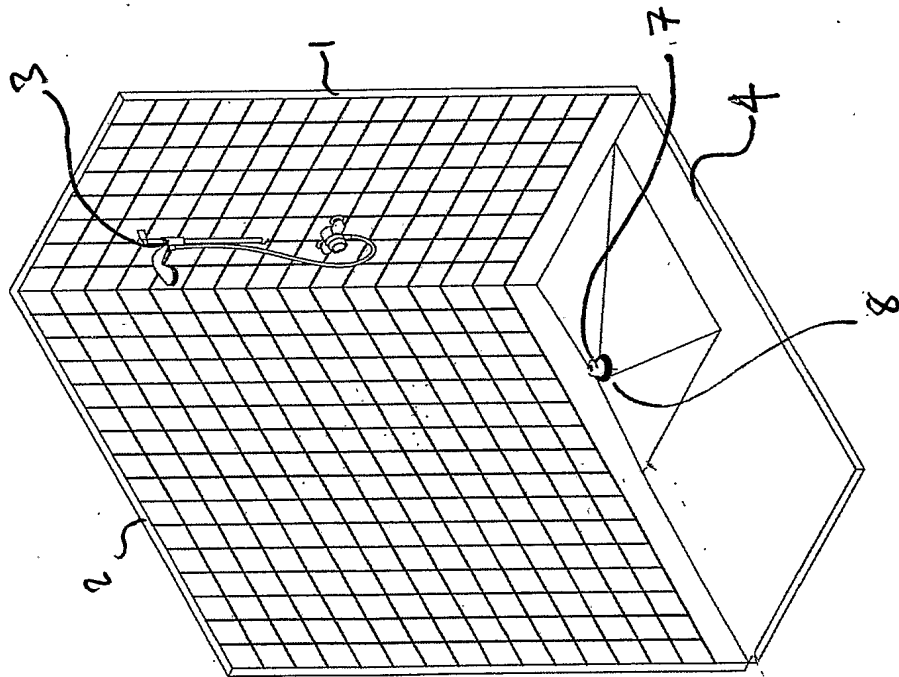
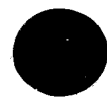


FIGURE 1







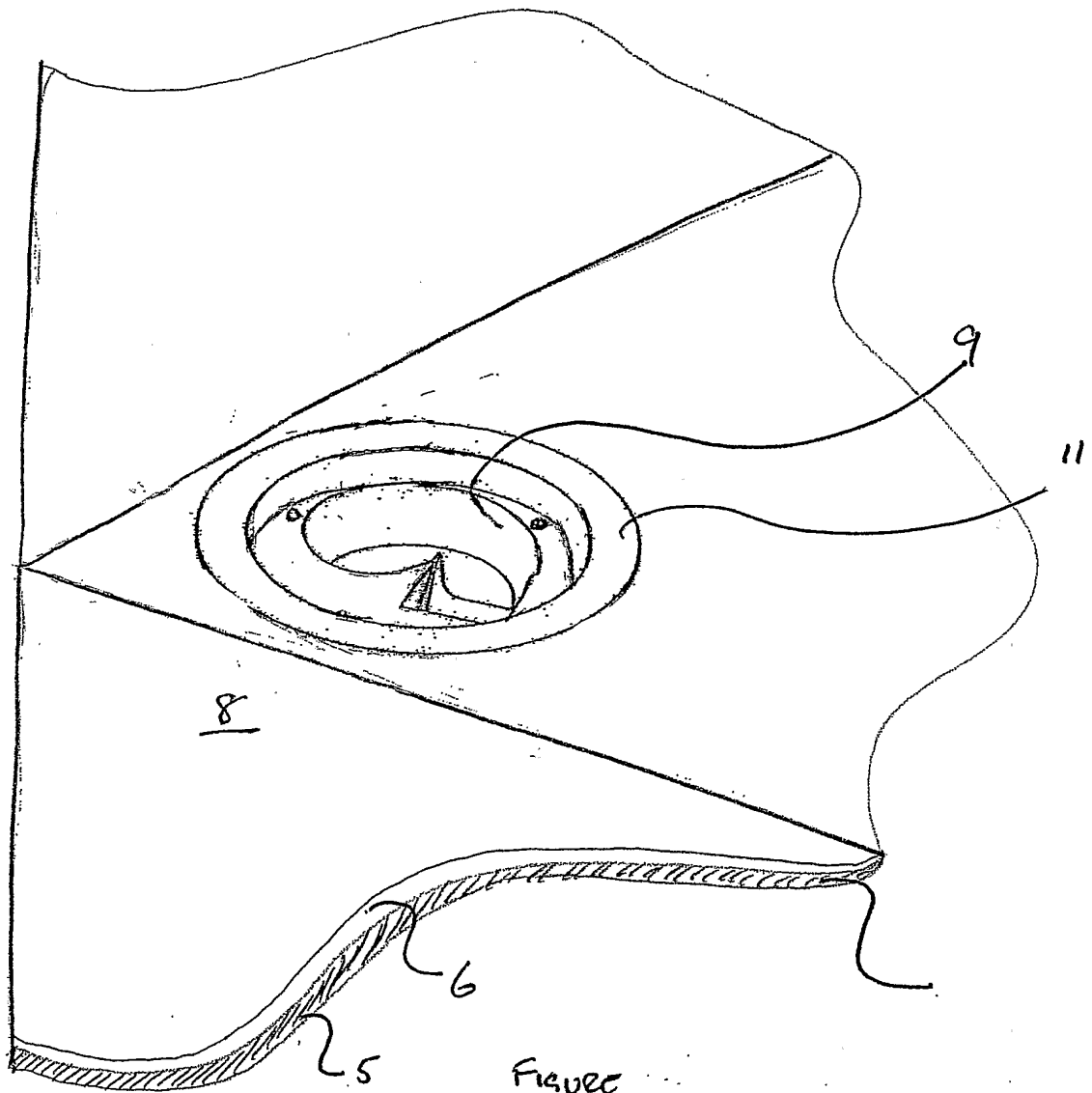
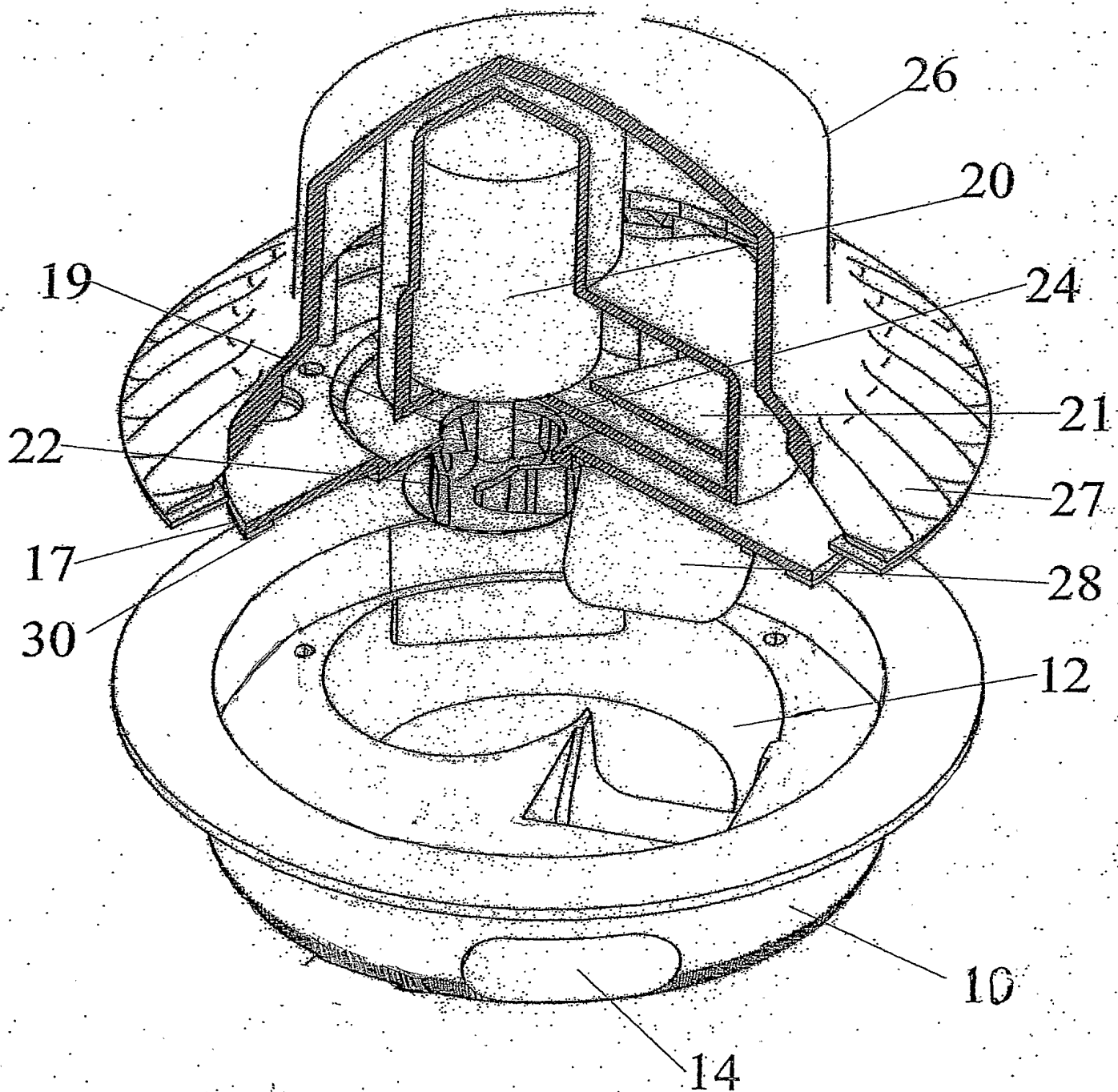








Figure 3







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